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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/736,225	12/15/2000	Chien-Ping Huang	EM/HUANG/6315	8653

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EXAMINER

PAREKH, NITIN

ART UNIT PAPER NUMBER

2811

DATE MAILED: 07/16/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.
09/736,225

Applicant(s)

Huang et al

Examiner

Nitin Parekh

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on May 14, 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 17-30 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 17-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 2 6) ☐ Other:

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DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 17 and 23 are rejected under 35 U.S.C. 102(b) as being anticipated by Fukutomi et al (US Pat. 5976912).

Regarding claim 17, Fukutomi et al disclose a single semiconductor package comprising:

- a solder mask/resist layer (8 in Fig. 10g) formed at selected locations
- a lead/connection layer being an intermediate and contiguous thereto the solder mask/resist layer
- a die pad layer (4 in Fig. 10a-g) having a chip (3 in Fig. 10g) adhering to the die pad layer
- a plurality of conductive elements/wires (100 in Fig. 10g) electrically connecting the chip and lead layer, and

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- a molded resin (503 in Fig. 126C) covering the chip, conductive elements/wires, solder mask/resist, lead layer and die pad layer.

(Fig. 10g; 10a-g; Col. 13, Col. 10-45).

Regarding claim 23, Fukutomi et al further disclose using conventional material such as photosensitive polyimide resin/solder mask (16 in Fig. 8a-e; Col. 12, line 15-45; Col. 11, line 35) for the die pad layer.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 18-22 and 24-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukutomi et al (US Pat. 5976912) in view of Kawahara et al (US Pat. 6111306).

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Regarding claim 18, Fukutomi et al discloses using the solder mask/resist/insulating material but fail to specify using the material being selected from a group consisting of polyimide and uv-curable resins.

Kawahara et al teach using conventional insulating solder mask material such as photosensitive/uv-curable polyimide/resin (Col. 59, line 30).

Therefore, it would be obvious to a person of ordinary skill in the art at the time invention was made to use the solder mask material selected from a group consisting of polyimide and uv-curable resins so that the package dimensions can be controlled using Kawahara et al's structure in Fukutomi et al's package.

Regarding claims 19 and 21, Fukutomi et al disclose the lead and die pad layers being made of a conductive material comprising nickel and gold formed by plating (Col. 13, line 20).

Regarding claim 20, Fukutomi et al disclose forming the solder mask by coating (Col. 13, line 45).

Applicant's claim 20 do not distinguish over Fukutomi et al regardless of the process for forming the solder mask, because only the final product is relevant, not the process of making such as "coating or photo-processing". Note that a "product by process" claim is directed to the product per se, no matter how actually made, In re

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Hirao, 190 USPQ 15 at 17 (footnote 3). See also In re Brown, 173 USPQ 685; In re Luck, 177 USPQ 523; In re Fessmann, 180 USPQ 324; In re Avery, 186 USPQ 161; In re Wertheim, 191 USPQ 90 (209 USPQ 554 does not deal with this issue); and In re Marrosi et al., 218 USPQ 289, all of which make it clear that it is the patentability of the final product per se which must be determined in a "product by process" claim, and not the patentability of the process, and that an old or obvious product produced by a new method is not patentable as a product, whether claimed in "product by process" claims or not. Note that applicant has the burden of proof in such cases, as the above case law makes clear. See also MPEP 706.03(e).

Regarding claim 22, Fukutomi et al disclose using the conductive elements/wires being made of a material such as gold (Col. 16, line 26) but fail to specify them being selected from the group consisting of gold, copper or aluminum.

It is conventional in the chip packaging art to use the conductive elements/bonding wires made of a material such as gold, copper, aluminum, etc (see IDS reference, paper #2: Takebe, Col. 3, line 61).

Therefore, it would be obvious to a person of ordinary skill in the art at the time invention was made to use the conductive elements made of a material selected from the group consisting of gold, copper or aluminum so that the electrical resistance can be improved in Fukutomi et al's package in view of Kawahara et al.

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Regarding claims 24-30, the claim elements have been addressed in the rejections as explained above for claims 17-23 respectively.

Response to Arguments

5. Applicant's arguments with respect to claims 1-8 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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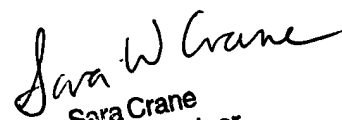
Papers related to this application may be submitted directly to Art Unit 2811 by facsimile transmission. Papers should be faxed to Art Unit via Technology Center 2800 fax center located in Crystal Plaza 4, room 4C23. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (15 November 1989).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nitin Parekh whose telephone number is (703) 305-3410. The examiner can be normally reached on Monday-Friday from 08:30 am-5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas, can be reached on (703) 308-2772. The fax number for the organization where this application or proceeding is assigned is (703) 308-7722 or 7724.

Nitin Parekh

07-12-02


Sara Crane
Primary Examiner